Claims

[c1] A transparent transaction device comprising:
a. at least one of a translucent and transparent device surface;
b. a machine recognizable compound associated with a portion of said surface; and
c. a transponder system interfacing with said device surface, said transponder system operable to receive a first RF interrogation signal, authenticate said first RF interrogation signal, and transmit a transponder system account data, said transponder system comprising:
i. a first transponder responsive to said RF interrogation signal;
ii. a transponder system authentication circuit in communication with at least one of said first transponder and a second transponder; and
iii. a transponder system database in communication with said first transponder.

[c2] A transparent transaction device of claim 1, wherein said machine recognizable compound is extrusion coated to said at least one of a translucent and transparent card surface.

[c3] A transparent transaction device of claim 1, wherein at least one of said translucent and transparent layers comprises a plurality of perforations.

[c4] A transparent transaction device of claim 3, wherein said plurality of perforations forms a pattern in at least one of said translucent and transparent layers.

[c5] A transparent transaction device of claim 3 further comprising a subassembly of film layers, wherein said subassembly comprises the second layer and further wherein the subassembly comprises the plurality of perforations through said subassembly.

[c6] A transparent transaction device of claim 1 further comprising:

a. a second transponder system interfacing with said card surface, said second transponder system operable to receive said second RF interrogation signal, authenticate said second RF interrogation signal, and transmit said transponder system account data, said second transponder system comprising:

i. a second transponder responsive to said second RF interrogation signal;

ii. a second transponder system authentication circuit in communication with at least one of first transponder and

second transponder; and
iii. a second transponder system database in communication with said second transponder system.

[c7] The transparent transaction device of claim 1, further comprising a plurality of layers wherein a first layer comprises a first polymer and a second layer comprises a second polymer wherein said plurality of layers is transparent or translucent.

[c8] The transparent transaction device of claim 1, wherein said machine recognizable compound includes at least one of a chemical, solution, dye, layered material, pigment, encapsulated pigment, coating, film, thread, plastic, ink, concentrate, thermoplastic matrix, thermoset matrix, fiber, paper, and planchette.

[c9] The transparent transaction device of claim 1, wherein said machine recognizable compound includes at least one of invisible, visible or colored compounds.

[c10] The transparent transaction device of claim 1, wherein said machine recognizable compound includes an infrared ink.

[c11] The transparent transaction device of claim 1, wherein said machine recognizable compound includes an infrared ink comprising in the range of about 0.001 to

40.0 wt.(%) of an infrared activated material.

[c12] The transparent transaction device of claim 1, wherein said machine recognizable compound includes an optically recognizable compound.

[c13] The transparent transaction device of claim 1, wherein said machine recognizable compound is configured to at least one of block, diffuse, reflect, refract and absorb infrared light.

[c14] The transparent transaction device of claim 1, wherein said machine recognizable compound includes at least one of a binder, UV absorber, reflector, antioxidant, optical brightener, color shifter, chemical configured to improve processing, and chemical configured to adjust rheological properties.

[c15] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 2% Epolin VII-164 dye, about 98% Tech Mark Mixing Clear, about 980.0g of Tech Mark solvent evaporative screen ink, about 20.0g of Epolight VII-164 dye.

[c16] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 15.0 lbs of Epolin VII-164 dye, about 965 lbs of Tech Mark Mixing Clear, and about 20.0 lbs of Epolight VI-30 dye.

[c17] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 30.0 grams of Epolight VII-172 dye, 700.0 grams of polyvinylchloride plastic, and 99.0 lbs of PVC.

[c18] The transparent transaction device of claim 1, wherein said machine recognizable compound includes PET plastic.

[c19] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 0.80 grams Tech Mark mixing clear, about 0.07 grams VMCA resin, about 0.10 grams cyclohexanone, and about 0.03 grams epolight vii-164.

[c20] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 0.55 grams vinyl VMCA resin, about 0.35 grams EEP solvent, about 0.05 grams cyclohexanone, about 0.03 grams epolight vii-164, and 0.02 grams epolight vi-30.

[c21] The transparent transaction device of claim 1, wherein said machine recognizable compound includes: 0.90 grams TM mixing clear, about 0.03 grams cyclohexanone, about 0.03 grams epolight vii-164, about 0.02 grams epolight vi-30, and about 0.02 grams epolight 6084.

[c22] The transparent transaction device of claim 1, further comprising a second transponder responsive to a second RF interrogation signal, said first RF interrogation signal different from said second RF interrogation signal.

[c23] A system according to claim 17, wherein said transponder system further includes a transponder system protocol/sequence controller in communication with at least one of said first transponder, said second transponder, said transponder system authentication circuit, and said transponder system database, said transponder system protocol/sequence controller configured to control the order of operation of said first transponder, said second transponder, said transponder system authentication circuit, and said transponder system database.

[c24] A system according to claim 17, wherein said transponder system further comprises at least one of a first transponder system antenna and a second transponder system antenna, said first transponder system antenna configured to receive said first RF interrogation signal, and said second transponder system antenna configured to receive said second RF interrogation signal.

[c25] A system according to claim 18, wherein said transponder system protocol/sequence controller is responsive to

at least one of said first RF interrogation signal and said second RF interrogation signal, said transponder protocol/sequence controller controlling the sequence of operation at least one of said transponder system authentication circuit, and said transponder system database, in response to at least one of said first RF interrogation signal and said second RF interrogation signal.

[c26] A system according to claim 18, wherein said transponder system protocol/sequence controller is configured to activate said transponder system authentication circuit in response to said first RF interrogation signal, said transponder system authenticating circuit configured to provide an encrypted RF interrogation signal, said transponder system authentication circuit configured to provide said encrypted RF interrogation signal to said first transponder for providing to a RFID reader.

[c27] A system according to claim 1, wherein said transponder system database is operable to store at least one of a transponder system identification data, a RFID reader decryption security key, a transponder system account data.

[c28] A system according to claim 22, wherein said transponder system database is configured to provide said RFID reader decryption security key to said transponder sys-

tem authentication circuit in response to a encrypted authentication code.

[c29] A system according to claim 1, wherein said transponder system further includes an internal power source.

[c30] A system according to claim 24, wherein said transponder system further includes a biometric circuit, said biometric circuit in communication with said internal power source.

[c31] A system according to claim 25, wherein said biometric circuit is configured to provide a biometric data verification response, said biometric circuit configured to provide said biometric data verification response to at least one of said RFID reader and a merchant system, wherein said biometric data verification response is an identification verification data.

[c32] A transparent transaction device comprising:
a. at least one of a translucent and transparent device surface;
b. a machine recognizable compound associated with a portion of said surface;
c. at least one of a holographic foil, an integrated circuit chip, a magnetic stripe, an opacity gradient, embossed characters, signature field, and text and logo; and,

d. transponder system including a RFID circuitry operable to receive a first RF interrogation signal, and to authenticate said first interrogation signal, said transponder system comprising a first transponder responsive to a first RF interrogation signal.

[c33] The transparent transaction device of claim 27, wherein said machine recognizable compound includes at least one of a coating, film, thread, plastic, ink, fiber, paper, and planchette.

[c34] A transparent transaction device comprising:
a. at least one of a opaque, translucent and transparent device surface;
b. a machine recognizable compound associated with a portion of said surface;
c. a holographic foil;
d. an integrated circuit chip;
e. a RFID circuitry; and
f. a magnetic stripe.

[c35] A process for fabricating a transparent transaction device including placing IR film between two layers of PET GS and incorporating RFID circuitry.

[c36] The process of claim 31 further comprising chemical deposition by at least one of vacuum coating, solar coating

and Magnetron sputtering, providing a laminate, providing a core layer and adhering the layers of the card with adhesive.

[c37] A transparent transaction device at least a portion of which is substantially transmissive to visible light, comprising:
a. at least one of a translucent and transparent device surface;
b. a machine recognizable compound covering at least a portion of said device surface, wherein said machine recognizable compound is substantially transmissive to visible light; and,
c. a RFID circuitry interfacing with said surface, said RFID circuitry including a transponder responsive to a first interrogation signal.

[c38] A transparent transaction device at least a portion of which is substantially transmissive to visible light, comprising:
a. at least one of a translucent and transparent device surface;
b. at least one of a holographic foil, an integrated circuit chip, a magnetic stripe, an opacity gradient, embossed characters, signature field, text and logo;
c. a machine recognizable compound covering at least a portion of said device surface, wherein said machine rec-

ognizable compound is substantially transmissive to visible light; and

d. a RFID circuitry interfacing with said surface, said RFID circuitry including a transponder responsive to a first interrogation signal.

[c39] A process for fabricating a transparent transaction device at least a portion of which is substantially transmissive to visible light, comprising:

a. placing machine recognizable compound between at least two layers of PET IR forming a subassembly; and

b. placing a RFID circuitry between at least one layer of the PET and the machine recognizable compound.

[c40] A process for fabricating a transparent transaction device at least a portion of which is substantially transmissive to visible light, comprising:

a. placing machine recognizable compound between at least two layers of PET IR forming a subassembly;

b. placing the subassembly between at least two layers of polyvinylchloride; and

c. placing a RFID circuitry between at least one layer of the polyvinylchloride and at least one layer of the subassembly.